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Modular Training Standards

# **Construct Steel Installations**

Program #770010

Shaft Services Specialties Group  
Module U0085c

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Ministry of Training,  
Colleges and Universities

**Modular Training Standards**

## **Construct Steel Installations**

**Program #770010**

**Shaft Services Specialties Group**

**Module U0085c**

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This document is the property of the trainee/  
employee named inside and represents the  
official record of his/her training.

## CONSTRUCT STEEL INSTALLATIONS

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### TRAINING UNIT

**NUMBER    TITLE**

U0085c      Construct Steel Installations ..... 7-10

**AREAS OF  
COMPETENCY**

**COMPETENCY ANALYSIS PROFILE  
CONSTRUCT STEEL INSTALLATIONS  
ON-THE-JOB TRAINING STANDARDS  
SKILLS.**

<b>CONSTRUCT STEEL INSTALLATIONS</b>  <b>U0085c.0</b>	Identify and respond to workplace hazards.  0085c.01	Inspect and scale workplace.  0085c.02	Extend services.  0085c.03	Prepare for installation of steel structures.  0085c.04	Inspect workplace.  0085c.05
	Conduct pre- operational checks on mobile equipment.  0085c.06	Conduct pre- operational checks on non-mobile equipment.  0085c.07	Start up mobile equipment  0085c.08	Construct steel installations.  0085c.09	Operate lifting mechanism(s).  0085c.10
	Shut down equipment.  0085c.11				

### PREFACE

This training document was developed by the Program Development and Standards Unit of the Ministry of Training, Colleges and Universities, in consultation with representatives from the Underground Hard Rock Mining industry. These Training Standards are intended to be used by trainee, trainers/instructors and companies as a "blueprint" for training or as a prerequisite for government accreditation/certification. While this training document is intended as guidelines for training, all issues might not apply in all operations.

A Basic Underground Hard Rock Miner (entry level) is a worker who has achieved accreditation in the entire Common Core Program # 770010. The Mining Tripartite Committee recommends that the employer must provide training in the entire common core for the Basic Underground Hard Rock Miner Training Program, to the worker, within the first year of employment. The prerequisite common core and specialty modules related to a specialty module must be taken before training in the specialty module, e.g Jumbo Drill *NOTE: To be trained and accredited in this module, the prerequisite modules from Program #770010 are U0000, U0001, U0002, U0004, U0006 and U0011. The other prerequisite modules, where applicable, are U0005, U0007, U0014, U0015 and U0082.* Employers have a responsibility to train workers for the work to be done.

The first three modules of Program #770010 - U0000, U0001 and U0002 are prerequisites to all other modules for the program. They must be completed before any other modules can be done and before the employee can be permitted to work underground.

Under the Occupational Health & Safety Act - R.R.O. 1990 Regulation 854, 11.3 there is an allowance for the recognition of equivalent training from other jurisdictions to Ontario training. Based on a comparison of the two programs, the Mining Tripartite Committee has deemed Quebec's Formation Modulaire du Travailleur Minier (FMTM) program to be equivalent to Ontario's Program #770010 Common Core except for specific mine orientation (U0000, Follow Surface and Underground Induction Procedures) and secondary blasting (U0006, Blast Rock). Employers should contact their local apprenticeship office for details about the requirements associated with these equivalencies.

New trainees or experienced miners must obtain accreditation in the same way. Each must demonstrate the skills specified in each Performance Objective to the described minimal acceptable standard as prescribed in each module. These demonstrations must be administered in an operating mine by a trainer designated by the company who shall follow the Performance Demonstration Guidelines approved by the Mining Tripartite Committee.

The care and maintenance of this book is the joint responsibility of the trainee and the employer. The Training Standards were developed specifically for documenting the trainee's acquisition of skills.

### **PREFACE** - Cont'd

Areas of the Basic Underground Hard Rock Common Core including mechanical staging, drilling, rock bolting, and mucking may infringe on some speciality modules for purposes of safety and technological changes. However, accreditation in these areas of the Common Core is not intended to replace accreditation in the speciality modules.

Throughout the document the term "including" is often used. "Including" means : one or more of the items listed, but not limited to those items included in the list.

**N.B. Re:** Lock out and /or tag, where it is practical or possible to lock, then locking and tagging should be the norm.

### **NOTICE/DECLARATION FOR COLLECTION OF PERSONAL INFORMATION**

1. This information is collected under the authority of the Order-In-Council Number 701/85.
2. The information is collected for the purpose of administering this modular training program within the Province of Ontario.
3. Questions regarding collection and use of this information may be directed to:

Director of Apprenticeship  
Workplace Training Branch  
Ministry of Training, Colleges and Universities  
900 Bay Street  
17th Floor  
Toronto, Ontario  
M7A 1L2  
(416) 326-5605

### **IMPORTANT DIRECTIONS TO TRAINERS**

Trainers instructing workers in the specialty modules for Program 770010 must meet the Trainer Qualification and Criteria Guidelines for Program #770010. They must be accredited in the Basic Common Core Underground Hard Rock program #770010 and the specialty module they will be instructing. Contact your local apprenticeship office for a copy of the Trainer Qualification and Criteria Guidelines.

The Training Standards identify skills required for this occupation and its related training program.

These Training Standards have been written in concise statements which describe how well a trainee must perform each skill in order to become competent.

In using these Training Standards, trainers will be able to ensure that the trainee is developing skills detailed for the occupation.

Trainers and trainees are required to sign off and date the skills following each successful acquisition.

Employers participating in this training program will be designated as the Signing Authority and are required to attest to successful achievement in the space provided at the end of each unit.

### **IMPORTANT DIRECTIONS TO THE TRAINEE**

Trainee

1. It is the responsibility of the trainee to inform the local Apprenticeship Client Services office regarding the following changes:
  - change of trainee name or address;
  - transfer to a new employer;
2. Training Reports must be signed for modular trainees by a Ministry of Training, Colleges and Universities designated Signing Authority and forwarded to a local Apprenticeship Client Services office.
3. At the completion of training, the Trainee Completion Form must be completed and signed off by the Signing Authority and submitted to local Apprenticeship Client Services office.

## CONSTRUCT STEEL INSTALLATIONS

### **UNDERGROUND HARD ROCK MINING SPECIALITY MODULES LISTING BY GROUPS**

#### **GROUP 1    PRODUCTION SPECIALTIES**

U0051 Perform Non-Mechanized Room and Pillar Mining  
U0052 Perform Mechanized Room and Pillar Mining  
U0053 Perform Shrinkage Mining  
U0054 Perform Regular Cut and Fill Mining  
U0055a Perform Mechanical Cut and Fill Mining-  
    Non Captive Stope  
U0055b Perform Mechanical Cut and Fill Mining-  
    Captive Stope  
U0056 Perform Square Set Mining  
U0057 Perform Under Cut and Fill Mining  
U0058 Perform Non-Mechanized Bulk Mining  
U0059 Perform Mechanized Bulk Mining

#### **GROUP 3    HAULAGE SPECIALTIES**

U0015 Maintain Tire and Wheel Assemblies  
U0017 Operate Scram Drift  
U0019 Perform Track Haulage- Operate  
    U/G haulage Train Remote Control  
U0020 Perform Trackless-Haulage Operate  
    Scoop Tram-Remote Control  
U0023 Operate Front-End Loader  
U0067 Perform Track Haulage- Operate  
    U/G Haulage Train

#### **GROUP 2    DEVELOPMENT SPECIALTIES**

U0016 Perform Non Mobile-Trackless Drifting  
U0060 Perform Mobile Drifting  
U0061 Perform Non-Mobile Track Drifting  
U0062 Perform Conventional Untimbered Raising  
U0063 Perform Conventional Timbered Raising  
U0064 Perform Mechanized Raising  
U0065 Perform Drop/Inverse Raising Mechanized/NonMechanized  
U0066a Perform Shaft Sinking- Timber Lining Installation  
U0066b Perform Shaft Sinking- Concrete Lining Placement  
U0066c Perform Shaft Mucking  
U0066d Perform Shaft Drilling and Blasting

#### **GROUP 4    DRILLING AND BLASTING SPECIALTIES**

U0069 Operate Non-Mechanized Long Hole Drill  
U0070 Operate In-The-Hole Drilling  
U0072 Operate Raise Bore Drill  
U0089 Operate Mechanized Jumbo Drill  
U0090 Operate Mechanized Long Hole Drill  
U0092 Perform Mobile Bulk Blasting  
U0093 Perform Non-Mobile Bulk Blasting



## **CONSTRUCT STEEL INSTALLATIONS**

### **GROUP 3    HAULAGE SPECIALTIES - cont'd**

U0068a Perform Trackless Haulage-Operate Scoop Tram Draw Point  
U0068b Perform Trackless Haulage-Operate Scoop Tram Production/Development  
U0091 Operate Haulage Truck

### **GROUP 5    GENERAL SERVICES**

U0013 Operate Lifting Mechanism(s)  
U0014 Operate Forklift  
U0018 Operate Mechanized Rock Bolter  
U0021 Operate Bulldozer  
U0022 Operate Grader  
U0024 Operate Utility Vehicle  
U0025 Operate Mechanized Muck Conditioner  
U0026 Operate Mechanized Cable Bolter  
U0027 Operate Non-Mechanized Cable Bolter  
U0028 Operate Scissor Lift  
U0029 Operate Rock Breaker  
U0033 Operate Oxyacetylene Cutting Equipment  
U0035 Operate Backhoe  
U0036 Operate Overhead Crane  
U0074 Operate Mine Hoist- Friction or Drum  
U0075 Install and Maintain Track System  
U0076 Perform Fill Placement  
U0077 Operate Underground Crusher  
U0078 Operate Underground (Filter) Decantation System  
U0079 Operate Conveyor  
U0080 Install and Maintain Underground Pipe System  
U0081 Operate Tipple  
U0082 Install and Maintain Underground Ventilation Equipment

### **GROUP 6    SHAFT SERVICES**

U0083 Operate Cage  
U0084 Perform Shaft Maintenance  
U0088 Operate Skip

### **GROUP 7    CONSTRUCTION SERVICES**

U0085a Construct Concrete Installations  
U0085b Construct Timber Installations  
U0085c Construct Steel Installations  
U0086 Perform Shotcreting

## **CONSTRUCT STEEL INSTALLATIONS**

### **TRAINEE COMPLETION FORM**

Trainee Name

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Print

\_\_\_\_\_

Signature

Social Insurance Number

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The Training Unit, when completed, should be signed off by Trainer/ Signing Authority below. Submit required documentation to your local Apprenticeship Client Services office. Any supporting documentation should also be attached.

Employer Name:

\_\_\_\_\_

Address:

\_\_\_\_\_

Telephone:

\_\_\_\_\_

Signing Authority:

\_\_\_\_\_

Signature

### **TRAINING UNIT COMPLETION FORM**

**TRAINING TITLE  
UNIT**

**SIGNING AUTHORITY**

U0085c      Construct Steel Installations

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## CONSTRUCT STEEL INSTALLATIONS

### U0085c.0 CONSTRUCT STEEL INSTALLATIONS

#### GENERAL PERFORMANCE OBJECTIVE

Construct steel installations, by identifying and responding to workplace hazards; inspecting and scaling workplace; extending services; preparing for installation of steel structures; inspecting workplace; conducting pre-operational checks on mobile and non-mobile equipment; starting up mobile equipment; constructing steel installations; operating lifting mechanisms; and shutting down equipment according to government legislation, company standards and manufacturer specifications.

*NOTE: To be trained and accredited in this module, the prerequisite modules from Program #770010 are U0000, U0001, U0002, one of U0003 or U0003a, or U0003b, U0004, U0005, U0006, U0007, U0011, U0013 and U0033. The other prerequisite modules, where applicable, are U0010, U0014, U0024, U0028, U0067, U0075, U0080 and U0082.*

**SPECIAL NOTE: Re: Non-Routine Hazardous Task legislation.**  
Application of this legislation should be considered when any of the following situations exists: the worker does not perform task on a regular basis; the task is new to the worker; or the task is new to the workplace.

#### PERFORMANCE OBJECTIVES

Trainer's Name (Print)

Trainee's Name (Print)

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#### SKILLS

0085c.01 Identify and respond to workplace hazards, including: ground conditions, ventilation, open holes above/ below, and housekeeping, by isolating area; and reporting deficiencies according to government legislation and company standards.

Date Completed

Trainer's Signature

Trainee's Signature

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## CONSTRUCT STEEL INSTALLATIONS

### U0085c.0 CONSTRUCT STEEL INSTALLATIONS - Cont'd

- 0085c.02 Inspect and scale workplace, by selecting scaling bar for the specific job based on type, size and condition; fastening and connecting hoses; washing down area; setting water flow to control dust; performing scaling procedures; checking ventilation flow; taking corrective action and/or reporting according to government legislation and company standards.

Date Completed

Trainer's Signature

Trainee's Signature

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- 0085c.03 Extend services, including: air, water, power, ventilation, and communication lines, by bleeding air and water lines; flushing and installing headers; fastening, securing, hanging and supporting services; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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- 0085c.04 Prepare for installation of steel structures, by determining type and location of installation; interpreting/reading installation layouts; locating materials, including: anchors, steel girders, beams, plates and brackets/reinforcing materials; selecting tools and equipment, including: cut-off and hack saws, blocks, grinders, wrenches, power tools, hammers, levels, bars, rock pins, hangers, chains, bullhorns, lifting mechanism(s), blow pipe, measuring tape, plum bob and line, rock drills, anchors, pipes and templates; using personal protective equipment; using fall protection, including: fall arrest or travel restraint systems; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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## CONSTRUCT STEEL INSTALLATIONS

### U0085c.0 CONSTRUCT STEEL INSTALLATIONS - Cont'd

- 0085c.05 Inspect workplace, by checking for bootlegs and misholes; checking, cleaning and marking bootlegs; using non-sparking materials; determining procedure for handling misholes; posting required signs; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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- 0085c.06 Conduct pre-operational checks on mobile equipment, by testing power source; checking fluid levels; following refuelling procedures; inspecting principle components, including: steps, guards and hand rails, chassis, engine/power source, power train, controls, jacks, wheel chocks, lighting and warning systems, tires, wheel and wheel nut assemblies, fire extinguishers and fire suppression systems and pins; mounting and dismounting, using 3 point contact; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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- 0085c.07 Conduct pre-operational checks on non-mobile equipment, including; rock drills, lifting **mechanism(s)** and oxyacetylene cutting equipment; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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- 0085c.08 Start up mobile equipment, by activating power source; using warning systems and signals; observing equipment operation; performing brake tests; and checking for clearances and activity in area; locking out and/or tagging; and repairing and or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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## **CONSTRUCT STEEL INSTALLATIONS**

### **U0085c.0 CONSTRUCT STEEL INSTALLATIONS - Cont'd**

**0085c.09** Construct steel installations according to layout, including: walls, floors, catwalks, man ways, gangway, staging, barricades, steel sets, bulkheads, door/frames, culverts, ventilation fans, chutes, ore pass dumps, grizzlies, berms, ore pass plug and bumper blocks; wearing personal protective equipment; using fall protection including: fall arrest or travel restraint systems; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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**0085c.10** Operate lifting mechanism(s), including: tugger hoists, chain blocks, blocks and tackles, come-a-longs and other mechanized lifting mechanism(s), by completing pre-operational checks; starting equipment; raising and lowering materials; loading/unloading materials; using pre-determined signals; operating audio and/or visual communication systems; stopping equipment; completing post-operational checks; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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**0085c.11** Shut down equipment, by storing in designated/approved area; performing housekeeping; disconnecting and storing hand and power tools; completing operator report; locking out and/or tagging; and repairing and/or reporting deficiencies according to government legislation, company standards and manufacturer specifications.

Date Completed

Trainer's Signature

Trainee's Signature

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Employer's Name

Employer's Signature

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